



US009636128B2

(12) **United States Patent**
Zemlok et al.

(10) **Patent No.:** **US 9,636,128 B2**
(45) **Date of Patent:** **May 2, 2017**

(54) **METHOD AND FORCE-LIMITING HANDLE MECHANISM FOR A SURGICAL INSTRUMENT**

(56) **References Cited**

U.S. PATENT DOCUMENTS

(71) Applicant: **COVIDIEN LP**, Mansfield, MA (US)

3,079,606 A 3/1963 Bobrov et al.

3,380,445 A 4/1968 Frasier

(Continued)

(72) Inventors: **Michael Zemlok**, Prospect, CT (US);
Paul A. Scirica, Huntington, CT (US);
Robert J. DeSantis, Redding, CT (US)

FOREIGN PATENT DOCUMENTS

(73) Assignee: **Covidien LP**, Mansfield, MA (US)

AU 198654765 9/1986

DE 2744824 4/1978

(Continued)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 613 days.

OTHER PUBLICATIONS

(21) Appl. No.: **14/173,220**

Boyles, Walt; "Instrumentation Reference Book", 2002; Butterworth-Heinemann; 262-264.

(22) Filed: **Feb. 5, 2014**

(Continued)

(65) **Prior Publication Data**

US 2014/0150600 A1 Jun. 5, 2014

Primary Examiner — Michelle Lopez

Related U.S. Application Data

(62) Division of application No. 11/543,424, filed on Oct. 5, 2006, now Pat. No. 8,708,210.

(51) **Int. Cl.**

A61B 17/068 (2006.01)

A61B 17/29 (2006.01)

(Continued)

(52) **U.S. Cl.**

CPC **A61B 17/2909** (2013.01); **A61B 17/068** (2013.01); **A61B 17/10** (2013.01);

(Continued)

(58) **Field of Classification Search**

CPC **A61B 17/07207**; **A61B 2017/07242**; **A61B 90/03**; **A61B 17/2909**; **A61B 2017/2912**;

(Continued)

(57)

ABSTRACT

A safety handle assembly for use with a surgical instrument having an operative distal end portion is disclosed. The handle assembly includes a handle housing and a drive element movably mounted within the handle housing and connected to an associated operative distal end portion. A drive assembly is positioned within the handle housing and is engageable with the drive element to move the drive element within the handle housing. An actuator is movably mounted on the handle housing and an adjustable force-limiting mechanism is interposed between the drive assembly and the actuator. A force-limiting mechanism releasably connects the actuator to the drive assembly. The force-limiting mechanism is adjustable to preset the force at which the actuator separates or breaks away from the drive assembly.

11 Claims, 12 Drawing Sheets

